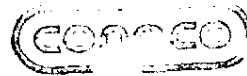


E230.1

Environmental --To 1971

CCR 000060509



Interoffice Communication

To J. D. Burns
From J. D. Minott
Date October 6, 1971
Subject Environmental Health Report
Continental VCM Plant

A. Status of Active Budget Items

1. Primary Treatment System Revisions

It has been decided to build an arched acid brick roof in the T-252 pit to repair it. The material has been ordered and forming work is underway on the required concrete changes. Completion of repairs should be during November 1971 and the system will be started up immediately upon completion. The top of the steam stripper tower was inspected during the month and no damage or corrosion was noted. Piping for the stripper bottoms cooler has been ordered and the cooler has been set. It will be operational when the steam stripper system is started up in November.

2730 gallons of slop EDC were hauled from the plant this month.

2. Secondary Waste Treatment System

Excavation and underground piping are still about 85% complete due to extensive rain this month. The clarifier floor and walls have been poured and also the instrument shed floor. Electrical work is about 15% complete and the main power feed has been brought into the site area. The in-plant neutralization system is 60% complete with only electrical and instrument work remaining. Completion of this project still appears to be in late December.

3. C-500 Venturi Scrubber

The system was put in operation on August 27 and on August 30 the spray nozzle of the scrubber failed and blew into the C-500 tower. The system is still operating (at part efficiency) since some scrubbing occurs even with a solid water jet instead of a cone spray. The nozzle vendor is redesigning the spray nozzle so that a new unit can be installed during the next plant shutdown. The pH of the T-2 pit water has dropped to 1.3 compared to about a 2.5 pH seen before the scrubber was installed. This would calculate out to 242 lbs/hr. of HCl removed from the C-500 vent stream (about 49%). A single test for organic removal showed 12% of the EDC and 2.3% of the ethyl chloride in C-500 were also scrubbed out. All of these efficiencies should improve when the new spray nozzle is installed early in 1972.

CCR 000060510

4. Copper Removal System

The copper removal system (used during catalyst turnarounds only) trenches and mixing basin are complete. New double size filter bags have been ordered for the filter system. The only remaining work is some minor piping work which should be done during October. This system is essentially operable now if required. Some process engineering work is continuing on methods of improving the $\text{Cu}(\text{OH})_2$ sludge filterability, such as filter aids or polyelectrolytes.

B. Current Developments

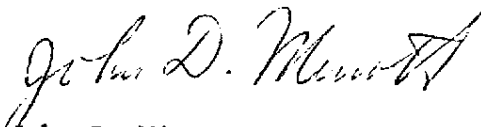
1. Analytical Work

The last of the special tests on the plant effluent and well waters have been completed by Ponca City R & D. The data showed less than 1 ppb mercury, under 1 ppm cyanide, 1.0 ppm lead, and about 3 ppm oil and grease. Plant analysis has shown that all of the sulfide, magnesium, aluminum, manganese, and most of the iron and copper in the plant effluent come from the well water feed. Cobalt, nickel, zinc, chromium, calcium, sodium and cadmium are being added by plant operation. Additional well water COD tests have confirmed a COD of around 5 ppm for the well water system. Phenol levels are higher than originally expected, (about 1.0 ppm) and apparently come from the plant operations.

Daily effluent samples were taken during September for 25 out of 30 days and checked for organics. The EDC content averaged 1673 ppm with a range from 831 to 3373 ppm. At an estimated 200 gpm flow rate, this would be about 4000 lbs/day of EDC in the effluent water.

2. 1899 Refuse Act - Part B

The completed supplemental form was mailed to Dr. Sharrah on September 10 and was received by the Corps of Engineers on September 23, 1971. On September 6, 1971 another form was received from the EPA requesting special data on capital costs, labor requirements, and operating costs on all pollution equipment from 1966 thru 1976. Work on this new form (reply to this form is voluntary) should be completed by the end of October 1971.



John D. Minott
Senior Process Engineer

jb

CC: LNV-DOP-RDG-RHG-PLF-GDJ

CCR 000060511

VCM EFFLUENT ER ANALYSIS
MONTH OF September 19 71

Parameter	9/7/71	9/14/71	9/21/71	9/28/71
Temperature - °F	-	-	93	93
pH	2.4	2.2	7.4	11.4
Acidity M.O.	1050	1625	Nil	Nil
Acidity Phenolphthalein	1250	2125	125	Nil
Alkalinity	Nil	Nil	Nil	-
Color	40	40	65	50
Turbidity	5	5	4	10
Flow - gpm	214	193	156	123
Total Solids	17,898	20,000	38,000	23,528
Total Dissolved Solids	17,204	20,000	22,000	21,392
Total Suspended Solids	694	Nil	16,000	2,136
Total Volatile Solids	1678	1840	1368	1044
Chlorides as Cl	7500	10,400	3600	10,500
Sulfates as SO ₄	250	280	150	225
Ammonia as N	40	-	72.6	12
Total PO ₄ as PO ₄	86	3	11.0	1.5
Ortho PO ₄ as PO ₄	45	1.5	0.22	0.1
Iron as Fe	19.7	18	5.7	6.5
Copper as Cu	0.70	0.72	0.14	0.13
Chromium as Cr	13.3	12	2.5	0.40
Zinc as Zn	3.8	2.8	0.3	0.05
COD	3600	2800	-	3680
BOD (5 day)	1180	1688	2220	1668
Formates	718	708	764	745
EDC	991	1018	2118	1478
VCM	Nil	10	8	1.6
Ethyl Chloride	18	15	18	15
Misc. other Organics	239	281	662	380
Mg	11.1	23	3.2	0.28
Mn	1.6	0.94	0.51	0.04
Co	1.4	2.2	1.3	0.25
Ca	105	1500	1135	60
Ni	1.3	0.44	0.9	1.3
Al	-	0.25	0.08	0.23
Cd	-	-	0.11	0.12

Remarks:

Samples on 9/21/71 and 9/28/71 show high pH is due to addition of waste caustic to effluent.

CCR 000060512

C-500 VENT STACK ANALYSIS
September 1971

Date	IN PPM BY VOLUME							IN VOLUME %						Flow in scfh
	EDC	VCM	Et Cl	Other Organics	Cl ₂	HCl	Oxidants	CO ₂	CO	O ₂	CH ₄	C ₂ H ₄	C ₂ H ₆	
9/1/71	4017	362	3685	-	6	3704	2765	1.7	1.0	2.0	Nil	0.6	Nil	624,800
9/3/71	12,200	420	3500	12,800	3	217	Nil	1.06	0.20	8.04	0.50	6.17	Nil	-
9/4/71	5687	750	3365	5584	17	5728	2790	1.82	0.12	2.20	0.12	0.74	Nil	-
9/5/71	4957	719	3426	4503	20	15,012	11,111	1.65	Nil	1.80	0.13	0.73	Nil	-
9/6/71	2568	2600	3800	6100	-	5061	1432	2.00	0.10	2.23	0.10	1.40	Nil	-
9/7/71	3708	800	3500	9400	-	12,666	2049	2.50	1.80	2.80	0.32	1.20	0.03	-
9/8/71	4620	1500	3500	12,500	15	1234	1975	2.20	1.50	2.70	0.36	1.20	Nil	-
9/15/71	2435	332	2890	8691	-	5673	4444	1.32	0.25	1.60	0.13	0.81	Nil	-
9/29/71	3528	540	5520	515	30	4765	5925	1.19	0.26	1.92	0.11	0.21	Nil	-

CCR 000060513

ENVIRONMENTAL HEALTH PROJECTS - VCM PLANT

January to December 1971

January
1st Quarter

April
2nd Quarter

July
3rd Quarter

October
4th Quarter

Water Sampling

Process Engineering and Laboratory

Air Sampling

Process Engineering and Laboratory

Primary Water
Treatment

Rebuild of Steam Stripper

Startup

Rebuild Roof

Install Oil Skimmer

Secondary Waste
Treatment

CED Design Work

Startup

Purchasing

Construction

C-500 Prescrubber

Purchasing

Construction

Replace Spray Nozzle

Copper Removal
System

Purchasing

Construction

Test

Low Pressure Con-
densate Collection
System

Repair Damage

Finish Construction

Tie-ins

Dry Crude Tank Fume
Scrubber

Purchasing

Construction

Slop Caustic Collec-
tion System

Purchasing

Construction

Startup

Chromate Removal System

Engineering

Plant Testing

Estimate

New Exchanger for C-101

Purchase

Mechanical Engineering

Construction

CCR 000060514